CLAIMS

1. A method of fabricating a semiconductor device comprising the steps of:

(a) forming an oxidation prevention film on a circuit formation surface of a semiconductor substrate;

(b) forming a trench having a desired depth at a predetermined position of the circuit formation surface of said semiconductor substrate;

(c) oxidizing said trench portion formed in said semiconductor substrate;

(d) burying a buried insulating film into said trench so oxidized;

(e) removing said buried insulating film formed on said oxidation prevention film; and

(f) removing said oxidation prevention film formed on the circuit formation surface of said circuit substrate.

2. A method of fabricating a semiconductor device comprising the steps of:

(a) forming an oxidation prevention film on a circuit formation surface of a semiconductor substrate;

(b) forming shallow trenches having a radius of curvature at corners in a desired position of the circuit formation surface of said semiconductor substrate;

(c) forming a trench having a predetermined depth to said shallow trenches having a radius of curvature so formed;

(d) oxidizing said trench portions formed in said semiconductor substrate;

(e) burying a buried insulating film into said trenches so oxidized;

(f) removing said buried insulating film formed on said oxidation prevention film; and

(g) removing said oxidation prevention film formed on the circuit formation surface of said semiconductor substrate.

3. A method of fabricating a semiconductor device according to claim 2, wherein said step for forming shallow trenches is carried out by isotropic etching and said step for forming a trenches having a predetermined depth is carried out by anisotropic etching.

4. A method of fabricating a semiconductor device comprising the steps of:

(a) forming an oxidation prevention film on a circuit formation surface of a semiconductor substrate;

(b) forming trenches having a predetermined depth at desired positions of the circuit formation surface of said semiconductor substrate;

(c) oxidizing said trench portions formed in said semiconductor substrate;

(d) burying a buried insulating film into said trenches so oxidized;

(e) removing said buried insulating film formed on said oxidation prevention film;

(f) oxidizing said semiconductor substrate

after said buried insulating film formed on said oxidation prevention film is removed; and

(g) removing said oxidation prevention film formed on the circuit formation surface of said semiconductor substrate.

5. A method of fabricating a semiconductor substrate comprising the steps of:

(a) forming an oxidation prevention film on a circuit formation surface of a semiconductor;

(b) forming shallow trenches having a radius of curvature at corners in desired positions of the circuit formation surface of said semiconductor substrate;

(c) forming trenches having a predetermined depth in said shallow trenches having a radius of curvature;

(d) oxidizing said trench portions formed in said semiconductor substrate;

(e) burying a buried insulation film into said trenches so oxidized;

(f) removing said buried insulating film formed on said oxidation prevention film;

(g) oxidizing said semiconductor substrate after said buried insulating film formed on said oxidation prevention film is removed; and

(h) removing said oxidation prevention film formed on the circuit formation surface of said semiconductor substrat .

6. A method of fabricating a semiconductor device according to claim 5, wherein said step for forming shallow trenches is carried out by isotropic etching and said step for forming a trenches having a predetermined depth is carried out by anisotropic etching.

7. A semiconductor device of the type wherein a device isolation oxide film structure formed on a circuit formation surface of a semiconductor substrate is a trench isolation structure, characterized in that an an angle θ of a trench, which constitutes said trench isolation structure with the circuit formation surface of said semiconductor substrate, in a depth-wise direction with respect to the side surface of said semiconductor substrate is within the range of 90° < θ < 180°.

8. A semiconductor device of the type wherein a device isolation oxide film structure formed on a circuit formation surface of a semiconductor substrate is a trench isolation structure, characterized in that an angle θ of a trench, which constitutes said trench isolation structure with the circuit formation surface of said semiconductor substrate, in a depth-wise direction with respect to the side surface of said semiconductor substrate is within the range of 90° < θ < 180°, and a silicon oxide exists inside said trench.